

**DART GAME**

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**BACKGROUND OF THE INVENTION**

[0001] For many years, coin operated, automatic scoring, electronic dart games have been available for use by the public. Coin operated games that dispense awards, such as coupons, tickets or tokens that can be redeemed for prizes if the player has met certain predetermined game requirements, also have been available to the public. Typically the games that dispense these awards, however, are games of chance in contrast to games of skill. Coupling the game of darts, which requires certain skills, with the dispensing of awards, such as coupons redeemable for prizes, has not been previously done, and is the basis for this invention. Not only is the idea of coupling the dispensing of coupons or the like with a dart game requiring skill unique, but new games that would be interesting to play and attract players to spend money to win an award or prize would be desirable.

**SUMMARY OF THE INVENTION**

[0002] The present invention is directed to a dart game assembly in which a skilled game of darts may be played and awards such as coupons or the like may be dispensed when a predetermined number of game requirements which are set into the assembly have been achieved by a player.

[0003] The present invention also includes unique and novel

dart games which require skill, are interesting to play, which attract players, and which may provide the basis for the dispensing of awards when a predetermined number of game requirements are achieved in the play of the game.

**[0004]** In one principal aspect of the invention, an electronic dart game assembly comprises an electronically scored dart board containing a plurality of scoring segments thereon; a processing unit for determining when at least one player who is playing a dart game at the dart board achieves a predetermined game requirement by striking one of the scoring segments with a dart; and an award dispenser which dispenses an award in response to a signal from the processing unit when a predetermined number of game requirements is achieved.

**[0005]** In another principal aspect of the invention, the processing unit generates an instruction to the player as to which scoring segment must be hit by a dart thrown by the player in order to achieve the predetermined game requirement.

**[0006]** In still another principal aspect of the invention, the processing unit is capable of adjusting the level of difficulty in achieving the predetermined game requirement.

**[0007]** In still another principal aspect of the invention, the processing unit includes artificial intelligence to adjust the level of difficulty in achieving the predetermined game

requirement.

[0008] In still another principal aspect of the invention, the processing unit generates an instruction to the player as to the amount of time in which a dart must be thrown by the player and determines whether the dart has been thrown within that time.

[0009] In still another principal aspect of the invention, the processing unit is capable of adjusting the amount of time.

[0010] In still another principal aspect of the invention, a dart game comprises providing a first instruction as to which scoring segment of a dart board must be struck by a dart thrown by a player of the game, and throwing the dart toward the dart board. Whether the dart did or did not strike the instructed scoring segment is detected and a mark is awarded to the player if the dart did strike the instructed scoring segment, and the player is not awarded a mark if the dart did not strike the instructed scoring segment. A second instruction is provided as to which scoring segment of a dart board must be struck by a second dart to be thrown by a player of the game, and the previous steps are repeated until all of the darts of all players have been thrown.

[0011] In still another principal aspect of the invention, in the dart game another instruction is also provided as to the amount of time in which a dart must be thrown by a player of the game, and whether the dart was or was not thrown within the instructed amount

of time is detected. A mark is awarded to the player if the dart did strike the instructed scoring segment and was thrown within the instructed amount of time, and the player is not awarded a mark if the dart was not thrown within the instructed amount of time.

[0012] In still another principal aspect of the invention, the dart game includes at least two players, and the game includes at least two rounds in which each player throws some of the player's darts in the first of the rounds, and the remainder of the player's darts in the second and/or subsequent rounds.

[0013] In still another principal aspect of the invention, in the dart game each player throws three darts in each round.

[0014] In still another principal aspect of the invention, in the dart game each player has 15 darts per game and there are 5 rounds per game.

[0015] In still another principal aspect of the invention, in the dart game an award is given to a player who attains a predetermined number of marks.

[0016] These and other objects, features and advantages of the present invention will be more clearly understood through a consideration of the following detailed description.

#### **BRIEF DESCRIPTION OF THE DRAWINGS**

[0017] In the course of this description reference will

frequently be made to the attached drawings in which:

**[0018]** Fig. 1 is a perspective view of a preferred embodiment of dart game assembly constructed in accordance with the principles of the present invention and upon which the preferred embodiments of dart game of the invention may be played;

**[0019]** Fig. 2 is a front elevation view of the electronic dart board which is on the game assembly as shown in Fig. 1, and upon which the preferred embodiments of dart game of the present invention may be played;

**[0020]** Fig. 3 is a front elevation view of the instruction and scoring display shown the top of the assembly as shown in Fig. 1, and showing an example of the display as it might appear during the playing of the preferred embodiments of dart game of the present invention;

**[0021]** Figs. 4 A, B and C are examples of several possible scoring segment instructions that might appear on the display of Fig. 3 during the course of the playing of a dart game of the present invention; and

**[0022]** Fig. 5 is a schematic block diagram of the computer processing unit incorporated in the dart game assembly of Fig. 1 and as employed in playing the preferred embodiments of dart game of the present invention.

### DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0023] Referring particularly to Fig. 1, an electronic dart game assembly 10 is shown having an upper housing 11 and lower housing 12. As is typical in such electronic dart game assemblies, the upper housing 11 has an electronically scored dart board 13 on its face which is constructed to be scored electronically upon contact of a dart thrown by a player which may strike and/or become embedded in any one of a number of distinctly scored scoring segments S such as shown in more detail in FIG. 2. For example, if the dart strikes segment  $S_1$  the score will be "double 20" segment  $S_2$  the score will be "single 5", segment  $S_3$  the score will be "triple 1",  $S_4$  the score will be "single 18"  $S_5$  the score will be "single bull 25", and  $S_6$  the score will be "double bull 25". The upper housing 11 also typically includes an electronic display 14 over the dart board 13 and which is visible to the players during the play of the game to display scores, rounds, etc. Both the electronically scored dart board 13 and the electronic display 14 are preferably those which were typically in use in the past and, therefore, the need to provide specially constructed game components for these is avoided.

[0024] The lower housing 12 preferably contains a panel 16 which as shown in Fig. 1 as inclined and which may contain instructions 18 for the play of any one of a number of different

electronic dart games that may be played on the game assembly, such as Cricket as well as the game of the present invention in which an award may be dispensed as will be described to follow. The panel 16 also typically includes several game select buttons 20a-20d as seen in Figs. 1 and 5 for selecting any one of the several games that may be played on the assembly. Player buttons 22 for actuation by each of the players who are to play a game to indicate how many players are playing the game which is selected also are positioned on the panel 16. Although only four game select buttons and player buttons are shown in FIG. 1, it will be appreciated that fewer or more than that number may be present on the panel 16 without departing from the invention.

**[0025]** The lower housing 12 also includes money deposit and change slots 24 for the insertion of money by the respective game players in order to qualify them to play the game and to return change if necessary. An award dispensing slot 26 is also positioned on the lower housing 12 as shown in Fig. 1 through which an award, such as a coupon C, ticket, token or the like may be discharged as will be described in further detail to follow.

**[0026]** The panel 16 is preferably locked by a key lock 28 or the like to close the lower housing 12 against access to the computer processing unit 30 and its various game operator settings, display outputs and play inputs, as seen in Fig. 5, by anyone other

than the game operator, e.g. the owner of the facility at which the dart game is located. The computer processing unit 30, hereafter "CPU", for the games which may be selected by the game select buttons 20a-d and its game operator settings for the games of the present invention are preferably located in the lower housing 12.

[0027] The following is a description of a preferred embodiment of dart game according to the principles of the present invention in which awards may be given for skilled play and which may be played on the dart game assembly just described.

[0028] Each player is given a total number of darts for the play of the game. In the preferred embodiment of game of the present invention, each player is given fifteen darts which are thrown in sets of three darts each round for a total of five rounds. Of course, it will be appreciated that the number of darts per round, the total number of darts and total number of rounds may be varied without departing from the principles of the invention.

[0029] In order to begin the game the correct game start and select button on panel 16 is pushed. As previously mentioned these buttons may include various buttons 20a-20d for selecting such games as Cricket 20a, other games 20b and 20c, and game start and select button 20d for the preferred game of the present invention to be described to follow. Once game start and select button 20d is energized, each of the players who desire to play the game



energizes a player button 22 as shown in Figs. 1 and 5, and inserts the appropriate amount of money into the money deposit slot 24 to qualify to play the game.

[0030] At this point the CPU 30 will send an output to the display 14 to display a "1" in the round counter 32 at player number "1" on the display 14. A "4" for round four is actually shown in Fig. 3 to illustrate that the game of the invention is typically longer than just one round. A randomly selected scoring segment instruction 34 which is generated by CPU 30 will also be output to the display 14 for the first player, and a number also from the CPU 30 will be output to the countdown clock 36 on the display 14. As shown in Fig. 3 the number "5" indicates that the first player has 5 seconds in which to throw the first dart, with the first dart in that round being indicated by the light next to the number "1" on the countdown clock 36. The countdown time may be adjusted by the CPU 30 to permit each of the players a few extra seconds to get in throwing position for the first dart which the player is to throw in that round.

[0031] If the first player throws the dart within the required countdown time, and the dart strikes the "triple 18" scoring segment as required in the scoring segment instruction 34 which was randomly generated by the CPU 30 and which is shown on the display 14 in Fig. 3, the CPU will send an award mark output 38 to the

display 14 which shows that the first player has a mark as indicated by the slash under the number "20" shown in the players marks section 38 of the display 14. Striking of the dart will also create several play inputs to the CPU 30 as seen in Fig. 5 indicating the fact that a dart has been thrown 40, a countdown (out/in) 41 input, and scoring segment instruction (out/in) 42. These inputs as previously mentioned will be read to determine whether it is now time to commence countdown for the second dart, whether the player's throw has satisfied the countdown requirement of 5 seconds and scoring segment instruction requirement of "triple 18" as seen in Fig. 3. If these requirements are met, a player will be entitled to the mark which was awarded and shown on the players marks section 38 of the display 14. If these requirements are not met, no mark will be awarded by the CPU 30. When the throw of the first dart 40 has been transmitted to the CPU 30 and the results tabulated by the CPU, the CPU will also generate display output to indicate that the second dart should be thrown 43, start the countdown clock 36 for a new countdown, and generate a new random scoring segment instruction 34 for display in the display 14.

[0032] Various examples of scoring segment instructions 34 are shown in Fig. 4. A "triple 13" instruction is shown in Fig. 4A, a "double bull" instruction is shown in Fig. 4B, and a "single 8" is

shown in Fig. 4C. These are shown as illustrative examples only and it will be understood that the instruction might or could be for some or all of the possible scoring segment combinations on the dart board.

[0033] Once the first player has thrown all three of his first round darts, inputs 40, 41 and 42 will be input to the CPU 30 three times, award marks 38 will be scored as appropriate and the CPU will output a new dart count 43, scoring segment instruction 34, and countdown clock 36 instruction to the display 14 to the second player line in the second row of indicators. At this point round "1" will continue to show on the round counter 32, the countdown clock 36 will commence, and will show that the first dart of the second player is to be thrown, and a new scoring segment instruction which has been randomly generated in the CPU 30 will be given at 34. Again, the second player will throw his first dart, and if it is within the countdown time requirement and strikes the scoring segment as set forth in the instruction 34 on the display 14, the second player will receive a mark in the players mark section 38.

[0034] As the game proceeds and a player achieves a total predetermined number of marks that has been set into the CPU 30 as a winning score, an award such as a coupon C, token, or the like will be dispensed from the award slot 26. The award(s) may either

be dispensed at the time it is achieved or at the end of the game. Dispensing of the award may be accompanied by alarms, bells, lights or the like to indicate a winner. The award may be redeemable for money or other merchandise as determined by the game operator. When all of the rounds of the game have been completed, the CPU 30 will energize the game over indicator 45 on the display 14 and may also initiate a sound indicator to signal the end of the game.

**[0035]** Although only four players marks 38 boxes are shown in Fig. 3, more than four players may be accommodated either by reusing the boxes or by adding more boxes to the display 14. And although only seven marks positions are shown to display marks achieved by each player, additional marks may be displayed by a backward slash to complete an "X".

**[0036]** Various settings may be input to the CPU 30 by the game operator to control aspects of the game and the CPU 30 as shown in Fig. 5. These settings may include the money amount needed per player to play the game 44, the number of seconds of countdown permitted per throw 46, countdown sound tone (on/off) 48, scoring segment selection (single, double and/or triple and the number) 50, number of marks required to win 52, number of rounds per game 54 and other game operator settings 56. The game operator would typically be either the manufacturer or distributor, a service person from the manufacturer or distributor, or the establishment

manager or owner of the establishment where the game assembly is placed. Adjustments such as length of countdown 46, the scoring segment selection 50, number of marks required to win 52, and/or number of rounds 54 can be used to control and alter the degree of difficulty of the game. For example, the degree of difficulty will increase if scoring segment selection is limited to only double scores or more and/or if the countdown time is decreased. Some or all of the game operator settings may be made either manually at 58 or by artificial intelligence 60 and either before the dart game assembly is put into play or upon win/loss history after it is in play.

[0037] Other inputs to the CPU 30 may also be made at 56 as shown in Fig. 5. For example, a variation of the rules in the game could be that if a player had two marks after three rounds, and if it was felt that in a few more rounds a winning score could be produced, the player might be allowed after the third round for example to purchase an additional three rounds in advance to achieve the winning score. Many variables could be applied to this variation, such as (1) the round at which the decision must be made, (2) the countdown time for the additional rounds might be varied, (3) the cost for the additional rounds might be greater or less, (4) the target selections might be easier or more difficult, and/or (5) the number of additional rounds that could be purchased

might be varied.

[0038] According to typical dart game rules, a player must stand at a line that is eight feet from the dart board. If a player stands closer than eight feet, it obviously makes hitting the required target segment that much easier. There are a number of ways to ensure that a player is properly positioned. For example, a distance detector 62, as shown in Fig. 1, may be located in the lower housing 12 which emits and receives a sound or other electromagnetic signal for determining the position of the player. Other detection devices (not shown) such as tracking the flight of the dart or a simple sound alert that would alert appropriate personnel in the establishment in which the dart game assembly is located might be provided that would permit someone to keep watch on the game to make certain that the rules are being followed.

[0039] The display shown in FIG. 3 is a typical display used in other dart games such as Cricket, but has been utilized to provide instructions and information to the players who are playing the new and unique dart games of the present invention. Accordingly, certain parts of the display such as displays 64 and 65, are not used and do not function during the play of the dart games of the present invention. Moreover, the labels "20", "19", "BULL", etc. in the players marks section 38 are utilized in the game of Cricket, but serve no function in the dart games of the

present invention.

[0040] From the foregoing, it will be appreciated that the dart game assembly and dart games described herein are unique in that they provide dart games that depend upon a player's skill and which can result in the dispensing of an award to the player. Thus, a standard dart board and game housing with which all dart players are familiar can be utilized to play a new game, to play a game of skill that can be used to dispense an award or may be played just for enjoyment, and the number of games played and profitably of money operated games may be increased.

[0041] It also will be understood that the preferred embodiments of the present invention which have been described are merely illustrative of the principles of the present invention. Numerous modifications may be made by those skilled in the art without departing from the true spirit and scope of the invention.